

## Lab 6-out of lab Maharshi Patel

### CSC3320 System Level Programming

### Lab Assignment 6 - Part 2 - **Post Lab**

Due at 11:59 pm on Friday, Feb 26, 2021

Purpose: Learn the differences between writing a Bourne shell script and Java program. Learn how to use command argument in a Bourne Shell script. Learn how to compile and run Java and C programs in Unix terminal.

#### Part A:

Please complete the tasks in following table step by step and finish the questions below the table.

	Step
<pre>#!/bin/bash # #foo.sh in Part A of Lab 6 - Part 1 #  x=0 # initialization x = 0 i=1 while [ \$i -le 3 ] # while(i&lt;=3) do s=`expr \$i \* \$i` # s=i*i x=`expr \$s + \$x` i=`expr \$i + 1` # i=i+1 done  echo x=\$x</pre>	1:
	Go
	to
	your

home directory (cd ~) and create a new file named as **foo.sh** (**vi foo.sh** or **nano foo.sh**), then

include following lines in your **foo.sh**.

**Step 2:** Save your file and exit editor.

**Step 3:** Try following command to make simple.sh executable.

**\$chmod a+x foo.sh**

**Step 4:** Execute this file by invoking its name.

**\$/foo.sh**

*Note: when typing the shell script in your terminal, please be very careful of the **spaces**.* 1

### **Questions:**

1) Attach a screenshot of the output in step 4.

```
[mpatel185@gsuad.gsu.edu@snowball ~]$ ./foo.sh
x=14
[mpatel185@gsuad.gsu.edu@snowball ~]$
```

2) Describe what does the shell script **foo.sh** do?

**Initialize x = 0, i=1. Do while loops until i<=3, s=i\*i. Then, s=s\*x and i++ to avoid infinite loop. At the end, print x**

### **Part B:**

**Step  
1:**  
Edit  
your

**foo.sh** and change “**-le 3**” to “**-le \$1**”.

**Step 2:** When finished, save the *foo.sh* and exit editor. Then try executing it again by typing following command.

**\$/foo.sh 5**

**Question:**

Attach a screenshot of the output.

```
[mpatel185@gsuad.gsu.edu@snowball ~]$ [mpatel185@gsuad.gsu.edu@snowball ~]$ ./foo.sh 5
x=55
[mpatel185@gsuad.gsu.edu@snowball ~]$
```

**Part C:**

**Step 1:** Edit your *foo.sh* in part B by making following modifications:

- Add two new lines below between line “**i=1**” and line “**while [ \$i -le \$1 ]**”  
echo  
please input a number  
read num
- Change “**-le \$1**” to “**-le \$num**”.

**Step 2:** When finished, save the *foo.sh* and exit editor. Then try executing it again by typing following command and **type 5** as the input of the number.

**\$/foo.sh**

**Question:**

Attach a screenshot of the output.

```
[mpatel185@gsuad.gsu.edu@snowball ~]$ [mpatel185@gsuad.gsu.edu@snowball ~]$ ./foo.sh
please input a number
5
x=55
[mpatel185@gsuad.gsu.edu@snowball ~]$ _
```

**Part D:**

Write a Java program named **foo.java** to accomplish the same task as that in *foo.sh* of Part

A.

Note: If you want to run your Java program in terminal,

- to compile foo.java, please try

**\$javac foo.java**

- To execute it, please try

**\$java foo**

### **Question:**

```
[mpatel185@gsuad.gsu.edu@snowball ~]$ vi foo.java
[mpatel185@gsuad.gsu.edu@snowball ~]$ [mpatel185@gsuad.gsu.edu@snowball ~]$ javac foo.java
[mpatel185@gsuad.gsu.edu@snowball ~]$ java foo
x=14
[mpatel185@gsuad.gsu.edu@snowball ~]$
```

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Then put the source code of **foo.java** in your answer sheet.

```
public class foo{
```

```
    public static void main(String[] args){
```

```
        int x = 0;
```

```
        int i = 1;
```

```
    do {
```

```
        int s = i * i;
```

```
        x = s + x;
```

```
        i = i + 1;
```

```
    } while(i <= 3);
```

```
    System.out.println("x="+x);
```

```
    }
```

```
}
```

### **Part E:**

**Create and run Kernighan and Ritchie's famous "hello,world" program. Step 1:** Go to

your home directory (cd ~) and create a new file named as **hello.c** (vi **hello.c** or nano **hello.c**), then include following lines in your **hello.c** .

```
#include <stdio.h>

int main(void)
{
    printf("Hello,world\n");
    return 0;
}
```

**Step 2:** Save your file and exit editor.

**Step 3:** Compile and link the hello.c program by following command.  
**\$cc hello.c**

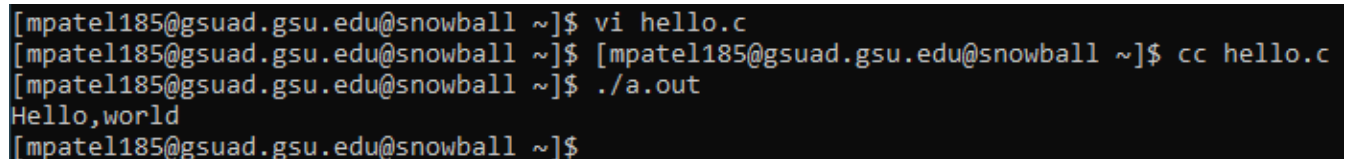
***Note:** after this command, a default executable program named as “a.out” will be generated in current directory if there are no errors with your C program. You can use **ls** to check the existence of a.out .*

**Step 4:** Run the executable program **a.out**

**\$/a.out**

### Questions:

1) Attach a screenshot of the output in step 4.



```
[mpatel185@gsuad.gsu.edu@snowball ~]$ vi hello.c
[mpatel185@gsuad.gsu.edu@snowball ~]$ [mpatel185@gsuad.gsu.edu@snowball ~]$ cc hello.c
[mpatel185@gsuad.gsu.edu@snowball ~]$ ./a.out
Hello,world
[mpatel185@gsuad.gsu.edu@snowball ~]$
```

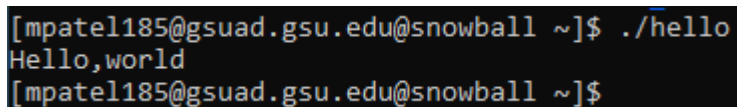
2) Try following command to compile and link **hello.c** again. And tell what new file is generated after this command?

**\$cc -o hello hello.c**

**This code compiles the hello.c file as the name of hello. If the file name is not specified, a.out is used**

3) Try command below and attach a screenshot of the output.

**\$/hello**



```
[mpatel185@gsuad.gsu.edu@snowball ~]$ ./hello
Hello,world
[mpatel185@gsuad.gsu.edu@snowball ~]$
```

4) Now write a new C program named as **myName.c** based on **hello.c**. In this program, print out your first name and last name instead of “Hello,world”. For example, the output could be “My name is Yuan Long”.

Execute your **myName.c** and attach a screenshot of the output. Then write the source code

of **myName.c** in your answer sheet and upload your file **myName.c** to classroom.

```
[mpatel185@gsuad.gsu.edu@snowball ~]$ [mpatel185@gsuad.gsu.edu@snowball ~]$ vi myName.c
[mpatel185@gsuad.gsu.edu@snowball ~]$ [mpatel185@gsuad.gsu.edu@snowball ~]$ cc -o myName myName.c
[mpatel185@gsuad.gsu.edu@snowball ~]$ ./myName
My name is Maharshi Patel
[mpatel185@gsuad.gsu.edu@snowball ~]$
```

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    printf("My name is Maharshi Patel\n");
```

```
    return 0;
```

```
}
```

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## ***Submission:***

Note: Please follow the instructions below step by step, and then write a report by answering the questions and upload the report (named as Lab6\_FirstNameLastName.pdf or Lab6\_FirstNameLastName.doc) to Google Classroom, under the rubric Lab 6 Out-of-lab Assignment.

Please add the lab assignment NUMBER and your NAME at the top of your file sheet.

